

## TWO NEW SPECIES OF THE GENUS CARYANDA (ORTHOPTERA, CATANTOPIDAE) FROM YUNNAN PROVINCE, CHINA

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**Abstract** Two new species of the genus *Caryanda* from Yunnan Province of China are described: *Caryanda alutricera* sp. nov. and *Caryanda amplexicera* sp. nov. Type specimens are deposited in Southwest Forestry College, Yunnan.

**Key words** Orthoptera, Catantopidae, *Caryanda*, new species.

The genus *Caryanda* includes more than Chinese fifty species mainly distributed in Yunnan, Sichuan, Tibet, Chongqing, Hunan, Hubei, Fujian, Zhejiang, Guangdong and Guangxi (Bi and Xia, 1984; Zheng, 1985, 1993; Fu and Zheng, 1994; He *et al.*, 1999; Mao and Ou, 2000; Wang and Zheng, 2000; Mao *et al.*, 2003, 2006; Fu and Zheng, 2004; Feng *et al.*, 2005; Li *et al.*, 2006). So far eleven species were recorded in Yunnan Province. In this paper, two new species are described from Yunnan.

### 1 *Caryanda amplexicera* sp. nov. (Figs. 1-4, 9-12)

**Male.** Body small size. Head shorter than pronotum; vertex convex slightly, anterior margin obtuse angulate, width as long as 1.2-1.3 times length, interocular distance 1.2 times width of frontal ridge between antennae. Frons oblique, frontal ridge with a longitudinal sulcus along the whole length, lateral margins parallel, becoming broad slightly in median ocellus; the faces with pitchy puncta, lateral facial keels distinct and straight. Antennae filiform, slender, reaching base of hind femur, length of median segment 2.8-3.0 times width. Eyes oval, longitudinal diameter 1.5-1.6 times the horizontal, and 2.2-2.3 times length of subocular suture. Pronotum nearly cylindrical, anterior margin rounded+curvatus, posterior margin with a shallow breach in the middle; median keel weakly, lateral keels absent; three transverse sulci clear, all crossing the median keel; length of prozona 2.0-2.1 times metazona. Propleuron triangular. Prosternal spine short and small, conical, apex pointed slightly. Mesosternal lobe wider than long, length of the interspace between mesosternal lobes 1.5-1.6 times its minimum width; metasternal lobes contiguous open. Wings short and small, tegmina squamiform, lateral, obviously reaching beyond the posterior margin of the first abdominal tergite, apices rounded, length 2.4-2.6 times its width. The upper middle carina of hind femur smooth, extremity with a

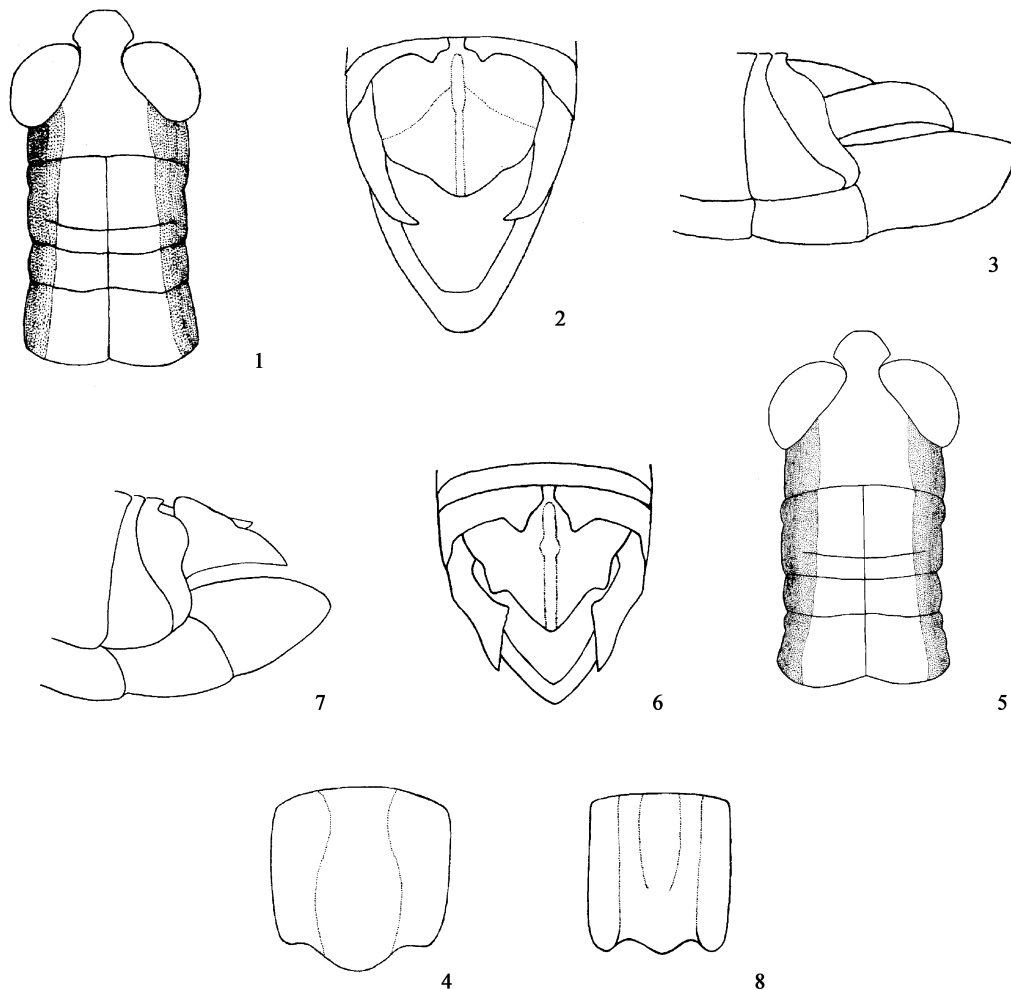
small tooth; apices of lower knee lobes of hind femur spinous. Hind tibiae with inner and outer apical spines, and 8-9 spines and 10 spines on outer and inner sides. Arolium large, longer beyond the top of claws. Abdominal tergites with median keel. Tympanum big, oval. Posterior margin of the last tergite with two small dentiform furculae. Supraanal plate nearly quadrate, with one middle longitudinal sulcus, which deep and distinct in the basal half part; posterior margin triangular protrusion. Cercus lamellate, compressed, apex pointed and decurrent-internus curvate distinctly as clasping, beyond the top of suranal plate. Subgenital plate conical, apex obtuse rounded.

**Coloration.** Body generally dark green. Several basal segments of antennae yellowish green and apical segments darkish brown. Eyes brunneous, postocular bands dark, laterally extending to 9th abdominal tergite. Gena flavovirens with black subocular bands. Tegmina dark. Hind femur with flavovirens in the basal, the other part aurantiaceous red, and with a yellowish green pregeniculate annulus near the apical part; knees black. Hind tibia blue-green, the basal part black with a chlorinus plaga; top of spines black. Both furcula and cercus dark.

**Female.** Body longer and thicker than male. Head short, width of vertex about 2.4 times the length, interocular distance 1.2-1.3 times the width of frontal ridge between antennae. Antennae short, just reaching posterior margin of pronotum, length of median segment 2.2-2.3 times width. Eyes oval, longitudinal diameter 1.5-1.6 times the horizontal diameter, and 2.3 times length of subocular furrow. Length of prozona 2.2-2.3 times metazona. Width of mesosternal lobes larger than its length, length of interspace of mesosternal lobes 1.2-1.3 times its minimum width; metasternal lobes open distinctly. Tegmina squamiform, lateral, reaching beyond posterior margin of the first abdominal tergite,

The study was supported by the National Natural Sciences Foundation of China (30460113) and the Science Foundation of Education Department of Yunnan Province (05Y193B).

Received 15 Feb. 2007, accepted 18 July 2007.



Figs 1-4. *Caryanda amplexicera* sp. nov. 1. Male head and pronotum, dorsal view. 2.  $\delta$  terminalia, dorsal view. 3.  $\delta$  terminalia, lateral view. 4.  $\varphi$  subgenital plate, ventral view. Figs 5-8. *Caryanda altricera* sp. nov. 5. Male head and pronotum, dorsal view. 6.  $\delta$  terminalia, dorsal view. 7.  $\delta$  terminalia, lateral view. 8.  $\varphi$  subgenital plate, ventral view.

apex rounded, length 2.5 times the maximum width. Supraanal plate triangular, with one curvatus transverse furrow in the middle, and with one middle longitudinal sulcus on the basal half part. Cercus conical, apex pointed slightly, not reaching the top of Supraanal plate. Subgenital plate with broad middle longitudinal sulcus, the middle of posterior margin with rounded curvatus protrusion. The outer margins of dorsal and ventral valves dentate.

**Coloration.** Female generally brown, probably copreous when alive. Several basal segments of antennae yellowish green and apical segments darkish brown. Eyes griscent brown, postocular bands brown, laterally extending to the posterior margin of pronotum. Tegmina brown. Hind femur with flavovirens in the basal, other part generally brown, down side aurantiacus red, deeply to dark brown in the outer and inner sides, the pregenicular annulus yellowish green; the upper kneelobes pitchy. Hind tibia blue green, with flavovirens in the basal; spines with black tops. Cercus brown.

Length of body:  $\delta$  19.5-21.1 mm,  $\varphi$  22.0-24.8 mm. Length of pronotum:  $\delta$  3.8-4.2 mm,  $\varphi$  4.6-5.0 mm. Length of tegmina:  $\delta$  3.5-4.3 mm,  $\varphi$  3.9-4.5 mm. Length of hind femur:  $\delta$  11.0-11.7 mm,  $\varphi$  12.7-13.5 mm.

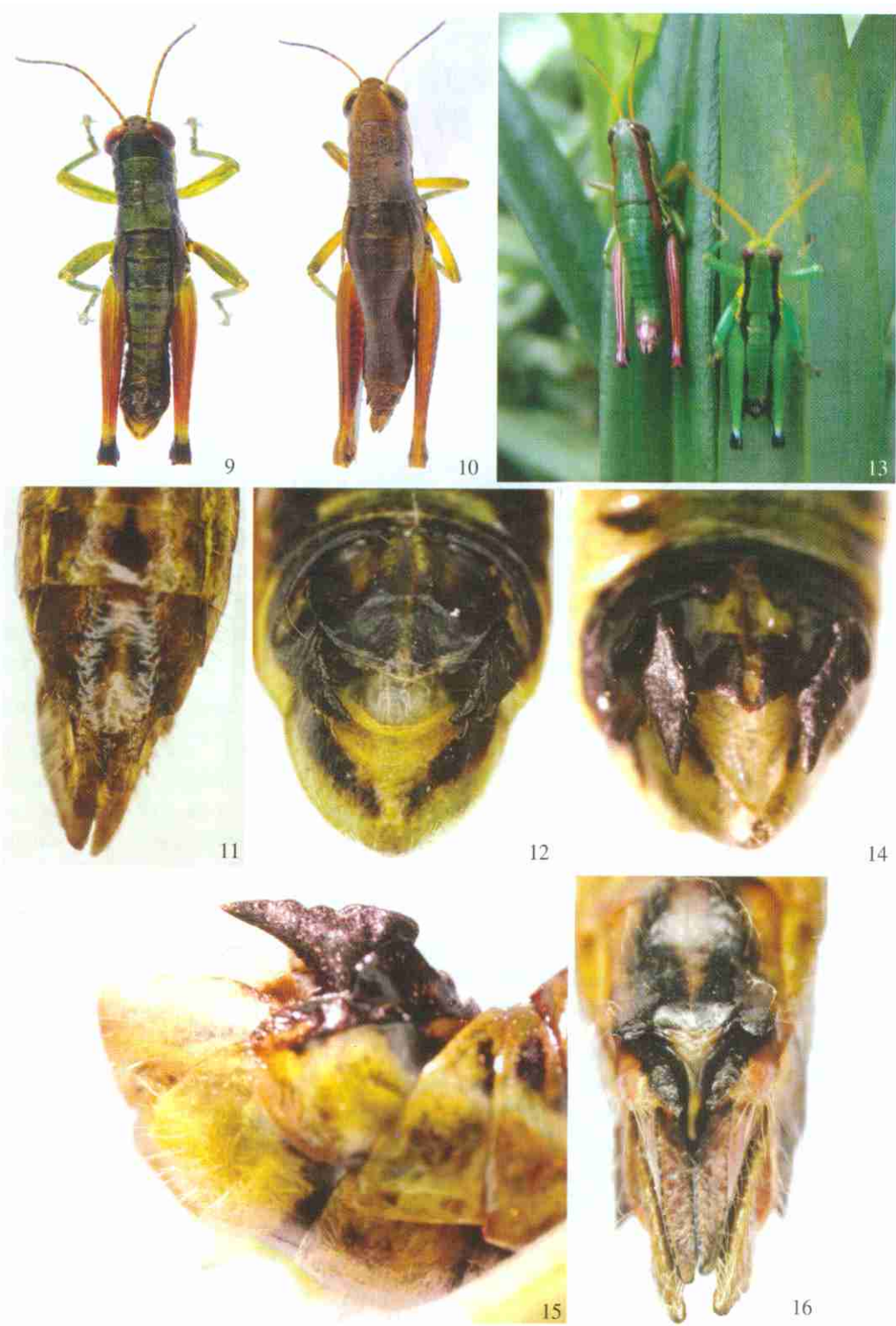
**Holotype**  $\delta$ , Yunnan Province, Gejiu, Kafang ( $23^{\circ}22'N$ ,  $103^{\circ}08'E$ ), 2100 m, 3 Sep. 2006, collected by LIU Qing. Paratypes 20  $\delta$ , 19  $\varphi$ , same data as holotype. Type specimens are deposited in Southwest Forestry College, Kunming, Yunnan Province.

This new species is similar to *Caryanda quadrata* Bi et Xia, 1984, but differs in the characters in Table 1.

**Etymology.** The specific name is derived from Latin words *amplex* and *cercus*, referring to the male adult with claspings cerci.

## 2 *Caryanda altricera* sp. nov. (Figs 5-8, 13-16)

**Male.** Body small size. Head shorter than pronotum; vertex broad and short, slightly concave in the middle, anterior margin obtuse angulate, width 1.4-1.5 times the length, interocular distance 1.5 times width



Figs 9-12. *Caryanda amplexicera* sp. nov. 9. Male. 10. Female. 11. ♀ subgenital plate, ventral view. 12. ♂ terminalia of abdomen, lateral view. Figs 13-16. *Caryanda altnicera* sp. nov. 13. Adults, left ♀, right ♂. 14. ♂ terminalia of abdomen, dorsal view. 15. ♂ terminalia of abdomen, lateral view. 16. ♀ subgenital plate, ventral view.

of frontal ridge between antennae. Frons oblique, frontal ridge with a longitudinal siccus along the whole length, lateral margins becoming broad slightly in median ocellus; lateral facial keels distinct and straight.  
Antennae thin and long, reaching base of hind femur, length of median segment about 3.0 times width.

Eyes oval, longitudinal diameter 1.4-1.5 times the horizontal diameter, and 2.0 times length of subocular suture. Pronotum cylindrical, anterior margin rounded curvatus, posterior margin with a shallow concave in the middle; median keel weakly, lateral keels absent; three transverse sulci clear, all interrupting median keel, length

Table 1. Differential diagnoses between *Caryanda amplexicerca* sp. nov. and *Caryanda quadrata*.

Characters	<i>Caryanda amplexicerca</i> sp. nov.	<i>Caryanda quadrata</i> Bi et Xia, 1984
Tegmina	Longer beyond than posterior margin of the first abdominal tergite distinctly	Not or just reaching posterior margin of the first abdominal tergite
Hind leg	Femur aurantiacus red, tibia blue-green	Femur and tibia flavovirens
Cercus (♂)	Lamelate, compressed, apex decurrent-internus curvate distinctly as clasping	Long conical, apex internus curvature
Subgenital plate (♀)	With rounded curvatus protrusion in the middle of posterior margin	With fovea slightly in the middle of posterior margin

of prozona 2.0-2.1 times metazona; anterior inferior cornu of the lateral lobe of pronotum rounded-curvatus, posterior inferior cornu obtuse-angulate. Propleuron triangular. Prosternal spine conical, apex pointed. Width of mesosternal lobes larger than its length, length of the interspace between mesosternal lobes 1.6-1.8 times its minimum width; metasternal lobes open. Wings short and small, tegmina squamiform, lateral, reaching just beyond the posterior margin of the first abdominal tergite, apex rounded, length 2.8-3.0 times its width. Upper middle carina of hind femur smooth, extremity with a small tooth; apices of lower knee lobes spinous on hind femur. Hind tibiae with inner and outer apical spines, 8 spines and 10 spines on outer and inner sides. Arolium of hind longer than the top of claws. Abdominal tergite with median keel. Tympanum oval. Posterior margin of the last tergite with a pair of small triangular furcula. Supraanal plate broad triangular, with longitudinal sulcus in the middle, the lateral margins upbend. Cercus plough shaped, apex pointed, superior margin curvature and internus concave in the submedian; the basal part higher than supraanal plate, cercus obviously reaching beyond the top of supraanal plate. Subgenital plate short conical.

Coloration. Body dark green. The apical segments of antennae darkish brown. Eyes brown, postocular bands black, laterally extending to 8<sup>th</sup> abdominal tergite. Gena chlorinus. Tegmina dark. Hind femur chlorinus, knees black. Hind tibia blue-green, the basal part black, with a white plaga; tops of spines black. Both furcula and cercus dark.

Female. Body longer and thicker than male. Head short, Width of vertex 2.1-2.3 times length, interocular distance 1.5-1.6 times the width of frontal ridge between antennae. Antennae short, reaching or beyond slightly the posterior margin of pronotum, length of median segment 2.0-2.2 times width. Eyes oval, longitudinal

diameter 1.5-1.6 times horizontal diameter, and 2.0 times length of subocular suture. Length of prozona 2.0-2.2 times metazona. Width of mesosternal lobes larger than its length, length of interspace between mesosternal lobes 1.2-1.3 times its minimum width; metasternal lobes open widely. Tegmina squamiform, lateral, just reaching or beyond posterior margin of the first abdominal tergite, apex rounded, length 3.1-3.2 times width. Supraanal plate triangular, with a transverse furrow in the middle, with a shallow longitudinal sulcus in the basal half part. Cercus conical, apex pointed, not reaching the top of supraanal plate. The posterior margin of subgenital plate with three processes, the middle process obtuse-angulate, the others with rounded apice, curved upward. The outer margins of dorsal and ventral valves dentate.

Coloration. Female body dark green. The apical segments of antennae darkish brown. Eyes brunneus, ocelli red. Postocular bands brunneus, laterally extending to the posterior margin of pronotum. Gena chlorines. Clypeus brunneus. Mesosternum, metasternum, tegmina and hind tarsi brunneus. Hind femur green, the upper side of hind femur brunneus, knees black. Hind tibia blue-green, the basal part black, with a white plaga; apice of apical spines and spurs black. Cercus black.

Length of body: ♂16.0-17.5 mm, ♀19.0-21.5 mm. Length of pronotum: ♂3.0-3.5 mm, ♀3.5-4.5 mm. Length of tegmina: ♂2.5-3.6 mm, ♀3.0-4.0 mm. Length of hind femur: ♂9.0-11.0 mm, ♀11.0-12.5 mm.

Holotype ♂, Yunnan Province, Lincang, Yongde (24°01'N, 99°15'E), 2060 m, 17 Aug. 2006, collected by LIU Qing. Paratypes: 17 ♂♂, 8♀♀, same data as holotype. Type specimens are deposited in Southwest Forestry College, Kunming, Yunnan Province.

This new species is similar to *Caryanda triodonta* Fu et Zheng, 1994, but differs in characters in Table 2.

Table 2. Differential diagnoses between *Caryanda cultricerca* sp. nov. and *Caryanda triodonta*.

Characters	<i>Caryanda cultricerca</i> sp. nov.	<i>Caryanda triodonta</i> Fu et Zheng, 1994
Tegmina	Length 2.5-3.6 (♂) or 3.0-3.8 (♀)	Length 4.3-4.5 (♂) or 5.2 (♀)
Cercus (♂)	Plough shaped	Conical
Posterior margin of subgenital plate (♀)	With 3 processes, the middle process obtuse-angulate, the others with curved upward	With 3 pointed teeth, the middle tooth larger than the others

Etymology. The specific name is derived from the Latin words *altr* and *cercus*, referring to the male adult with plough shaped cerci.

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卵翅蝗属云南省二新种记述 (直翅目, 斑腿蝗科)

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摘 要 记述采自云南省的卵翅蝗属 *Caryanda* 2 新种: 抱须卵翅蝗 *Caryanda amplexicerca* sp. nov. 和犁须卵翅蝗 *Caryanda cultricerca* sp. nov.。模式标本保存于西南林学院。

抱须卵翅蝗, 新种 *Caryanda amplexicerca* **sp. nov.** (图 1~ 4, 9~ 12)

新种近似方板卵翅蝗 *Caryanda quadrata* Bi et Xia, 1984。区别是: 1) 前翅明显超过第 1 腹节背板后缘; 2) 后足股节橙红色, 胫节蓝绿色; 3) 雄性尾须片状, 侧扁, 顶端明显向内向下弯曲, 呈抱握状; 4) 雌性下生殖板后缘中央圆弧形突出。

词源: 新种命名根据雄性具有抱握状的尾须。

关键词 新种, 卵翅蝗属, 斑腿蝗科, 直翅目, 云南省。  
中图分类号 Q969. 26

正模 ♂, 云南省个旧卡房(23°22' N, 103°09' E), 2 100 m, 2006 09 03, 柳青采集; 副模20 ♂♂, 18♀♀, 同正模。

犁须卵翅蝗, 新种 *Caryanda cultricerca* **sp. nov.** (图 5~ 8, 13 ~ 16)

新种近似三齿卵翅蝗 *Caryanda tridonta* Fu et Zheng, 1994。区别是: 1) 前翅长雄性 2.5~ 3.6 mm, 雌性 3.0~ 3.8 mm; 2) 雄性尾须犁状; 3) 雌性下生殖板后缘具三突, 中突钝角形, 两侧突顶圆, 翘起。

词源: 新种命名根据雄性具有犁状的尾须。

正模 ♂, 云南省临沧永德(23°53' N, 100°05' E), 2 060 m, 2006 08 17, 柳青采集; 副模17 ♂♂, 8♀♀, 同正模。